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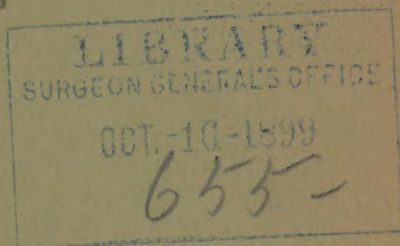
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REMARKS ON THE OPERATIVE
TREATMENT OF CANCER OF
THE BREAST, WITH A SYNOPSIS
OF 27 CASES OPERATED ON.

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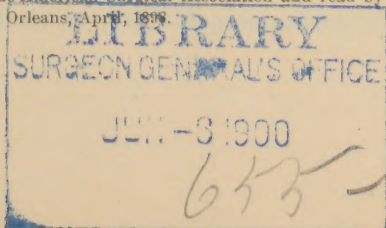
REMARKS ON THE OPERATIVE TREATMENT OF CANCER OF THE BREAST, WITH A SYNOPSIS OF 27 CASES OPERATED ON.¹

BY RUDOLPH MATAS, M.D.,
of New Orleans, La.

I.

WHEN, in 1886, I visited Paris and gazed with admiration and amazement at the vast distribution and unsuspected resources of the peripheral lymphatic network, as displayed with startling effect by the hand of that consummate anatomist, Prof. Sappey, I was particularly struck by the preparations of the mammary region and of the uterus. I then realized, as never before, the reasons for the obstinate regional recurrences, the early dissemination and the general metastases of the malignant neoplasms when they primarily invade these regions. I then understood more clearly the reasons for the failure of surgery in this field and the pessimistic views held on the subject by the vast majority of the surgeons of the day. I then simply wondered that any of these patients ever recovered, and that operations, as they were then generally performed, sometimes did succeed in eradicating the evil. But discouraging as they first appeared, these injections and dissections of Sappey went far toward encouraging the hope of cure by surgical intervention. For, while they showed that the avenues of infection from the mamma and the skin, and thence to the axilla, were extraordinarily free and easy, they suggested the possibility of

¹ Contributed to the American Surgical Association and read by title at the meeting held in New Orleans, April, 1898.



eradication by the total extirpation of the gland, with its overlying skin and the axillary contents, which were their main, if not exclusive, terminus. Another point in the lymphatic distribution of the mamma appeared also to have been made clear by Sappey (and before him by Sorgius), which was exceedingly favorable to radical treatment, and that was, that the lymphatic currents were directed throughout from the base to the apex and toward the nipple. According to this understanding, the retromammary region was not directly connected with the gland, and no fear of contamination with metastatic emboli had to be apprehended in this quarter, provided the retromammary space had not been primarily involved in the neoplasm.

According to Sappey, all the lymphatics of the gland itself ascend and converge to the nipple, where they form large trunks on the anterior aspect of the mamma, whence they travel upward and empty themselves into the axillary lymphatics. But, unfortunately for this view, the careful injections and histologic studies of Mascagni and Langhans, subsequently confirmed by Poirier, Rieffel, Gussenbauer, Küster, Heidenhain, Stiles, Jørss, and others, abundantly prove that Sappey's teachings were only partially correct, and that the avenues for the dissemination of the cancerous emboli are indeed far more numerous than he or his followers suspected. In fact, according to the observers referred to, the anastomoses and connections between the retromammary network and the intraglandular lymphplexus are so free and intimate that the entire lymph-carrying system of the thoracic parietes, including all the mediastinal nodes, is apparently at the mercy of any malignant neoplasm that may be lodged in the parenchyma of the breast. One thing we have also learned from these recent researches, and that is, that the entire axillary, subscapular, and deep cervical groups may be

infected primarily through the deep submammary lymph-canals that lie *in* and *under* the pectoral fascia, independently of the great highways of the lymph-currents that overlie the gland under the skin. Thus, contrary to older teaching, nothing like a thorough eradication of the lymph-tracts, from the breast to the axilla, can be contemplated, at least in deep glandular growths, without a total excision of the retromammary and paramammary connective tissue, including in this the whole suspensory apparatus of the gland, the pectoral fascia, and at least the sternal portion of the pectoralis major muscle. All of this has been so thoroughly understood since Volkmann, Küster, Halsted, Meyer, Watson Cheyne, Helferich, Rotter and other recent writers have described their methods and experiences that it would be superfluous to insist upon them on this occasion. But the point that I would dwell upon is that, while modern methods of histologic and pathologic research have improved, and as we have gained a clearer and broader insight into the mechanism of cancerous dissemination, the difficulties in the way of surgical relief have also increased, so that the purely technical problems that confront the conscientious operator who would be radical in his intervention have assumed far graver, more complex, if not more uncertain phases.

II.

Thus far, the greatest bar in the way of the successful surgical treatment of cancer of the breast, as of other localities, lies in the inability of the operator to adequately estimate the full extent of the lymphatic involvement in the epithelial growths and of the internal metastases, the latter especially in cases of sarcomatous infection. It is in the utter impossibility of recognizing the microscopic and *impalpable* contamination of the

lymph-tracts that always precedes the gross and *palpable* evidences of migration and metastasis that resides the chief and essential cause of uncertainty as to the final outcome of nearly every operation that is performed for this condition. The older surgery failed almost totally in its curative efforts chiefly because it disregarded the wide local and regional distribution of the migratory cells in the lymphatic network. At first, timid, partial operations ruled the day, and their inevitable failure led to total amputation of the gland. As this also failed, the axilla was invaded and only *visibly* diseased lymphatics were removed. Then the truth gradually dawned upon the operator that the simple removal of visibly contaminated tissues was often insufficient, because beyond the area that was clearly diseased there was, as a rule, another zone that was almost certain to develop new centers of malignant recrudescence. It was this fundamental idea, coupled with the greater security given by asepsis, that led to the establishment of the surgical maxim that few operations for well-developed cancer can be considered radical unless the removal of the primary growth is accompanied by the *prophylactic* extirpation of its tributary lymphatic areas. Thus it is that prophylactic extirpation constitutes the keynote to the more aggressive procedures that are to-day designated as "complete" or "radical," and that, beginning with the operations of Moore (1867), Gross (1880), Volkmann, Gusenbauer, Küster, and Banks, have found their most exalted expression in the present and now well-known methods of Halsted, (1894), Meyer, Lane, Cheyne, Rotter, Helferich, and others. But, as our knowledge of what constitutes the tributary lymphatic areas has expanded, we find that the strict application of the principle of *prophylactic* extirpation has become more difficult, if not practically impossible, of realization in practice.

For example, if we admit that the migratory germ-cells from a carcinoma of the breast must be carried along the path of the lymph-current until their progress is temporarily arrested by the first lymph-nodes that lie in their way, then it is plain, in view of our present knowledge of the location of these outposts of the lymphatic system, that we would have to include in our preventive extirpation not only the axillary, the infraclavicular and the subscapular groups, but also the retrosternal, anterior mediastinal, deep cervical, intercostal and postmediastinal groups, with their intervening lymph-channels as well. This last provision is necessary, not only because we now know that there is a direct connection between the intramammary lymph network and all the aforesaid groups, but because it has been clearly proved by recent histologic investigations that the lymph-channels themselves are frequently plugged with cancerous emboli long before they reach the intermediary lymph-nodes. But if we were to follow this principle of prophylactic extirpation to its legitimate and logical conclusions we would be compelled to control part of the vascular (venous) channels that drain the region, as these are just as likely to serve as avenues of dissemination as the lymph-tracts. The impracticability of such a proposition is so grossly apparent that it would be absurd even to refer to it were it not that it demonstrates how imperfect and limited are our surgical resources to cope with this elusive and far-reaching evil. These considerations also make it clearly apparent that surgical intervention for cancer of the breast, as well as in other localities, must always remain a tentative or, at least, an empirical procedure in the vast majority of cases as they present themselves to us in practice. Operations may be more or less aggressive, more or less complete as regards the thoroughness with which the diseased

breast, its adnexa, and the extrathoracic lymph-tracts are removed, but in the strictly anatomic and surgical sense the operation is bound to be imperfect and incomplete.

In other words, even in the most favorable cases that come to us for treatment, we operate on the presumption that metastatic migration has followed the widest and most direct highway (the axillary route), and that the less frequented byways of travel have not yet been utilized by the enemy. Success in avoiding intrathoracic and visceral metastases must, therefore, remain, to a large extent, a matter of chance, *not of certainty* that all the avenues of escape from the primary focus have been completely cut off. Hence it is that the words constantly used to qualify the operation of the day, as "complete" and "radical," are anatomic misnomers, which serve solely to indicate evolutionary phases in the surgical technic, and are illusory if used in the sense that they root out the evil with any degree of certainty.

III.

By the side of this decidedly gloomy and forbidding prospect presented to us by the study of the anatomic limitations that surround the surgery of cancer of the breast, we can hold up the results of clinical experience, as gathered in the last twenty years, as a contrast that more hopefully contradicts the preceding *a priori* considerations. Indeed, the experience of the last two decades, and more especially of the last ten years, has taught us several important and interesting facts. It has taught us, first of all, that by *more thorough* operating, the primary focus of infection can be eradicated with far greater certainty of non-recurrence *in loco* than was previously believed possible. The comparative statistics as to local and regional recurrence show this

plainly. For instance, the results of the older operations, as worked out by Dr. Halsted, show that in Billroth's cases there were 85% of local recurrences; in Czerny's, 62%; in Fischer's, 75%; in Gussenbauer's, 64%; in Volkmann's, 59%; in Gross', in 1880, 68%. If we compare these figures with the extraordinary fall to 6% in Halsted's first 51 cases (1894), or even if we include his 8 cases of *regional* recurrence in the category of *local* recurrences, we would still have only 22% of local recurrences in the practice of this distinguished operator. That this is not an accidental improvement due to individual conditions is shown by the results obtained by subsequent operators, which are even better.

For instance, Watson Cheyne's cases (1896), after three years' observation, showed only 18% of local recurrence. Rotter (1896) notes only 14% of local recurrences in his cases; Dennis (1896), in a series of 45 cases observed for three years, only 5%. Even admitting that these are the records of individual operators who deal with comparatively small groups, and that they do not indicate the true average obtained by the majority of surgeons, we must admit that the demonstrated possibilities of surgical work in this direction are surprising and encouraging. I believe that Jærss' more recent estimate (1897) based upon a study of 76 cases operated on by four surgeons (Heidenhain, Rotter, Helferich, Watson Cheyne), yielded a result of 30.3%, which is much nearer the true general average of local recurrence that may be expected after the most aggressive modern operations. Up to 1894, my own results with an extensive operation, modeled on the lines laid down by Gross and Volkmann, which I performed up to that time, was 40% of local recurrences. Since that time I have operated exclusively by the procedure advocated by Halsted and Meyer, and thus far recurrence has taken place in 33.3% of the cases, though many have

not yet reached the three-years' limit. This improvement is so slight by comparison, that I have been disappointed, though I believe the comparative lack of improvement in my last series of cases is susceptible of favorable explanation, as will be seen later. Nevertheless, taken as a whole, the improvement brought about by the present methods of operating are sufficiently encouraging to be a source of congratulation.

A far more important question than that of local recurrence is that which refers to the actual number of *cures* obtained by present methods. Here again, the statistical evidence is also encouraging. In the latest compilation presented by Bennett May (1897) we find the improvement in the percentage of recoveries that have stood the three-years' test to be as follows: Billroth, in 1876, claimed only 4.7% of cures; Küster, in 1881, 21%; Kœning, shortly after, 23%; Bergmann, 39%; while the average of Rötter, Helferich, and Watson Cheyne, in 1896, was 49.5%. Watson Cheyne found in a collection of 1,491 cases, collected from various sources and operated by older methods, that 14% had been cured. Compared with 111 recent operations that yielded 34% cures, the result in favor of the later methods is certainly marked. But these results are positively brilliant when we sum up the work of individual operators, though the value of their conclusions is minimized by the small numbers in each series. For instance, in 21 cases Watson Cheyne obtained 57% of cures. More remarkable are the results obtained by Dennis, who recorded 45% of cures in his first series, and in his last 15 cases (1896) 83% of cures that had stood the three-years' test.² These last figures are surprisingly brilliant, and no doubt show the absolute maximum of efficiency that may be obtained by individual operators in limited and, no doubt, very favorable groups of cases. I can

² Dennis' Surgery, vol. iv, p. 932.

scarcely believe that they will ever indicate the general average of cures, even under favorable conditions, when larger compilations are obtained. My own experience with permanent cures has been decidedly contradictory, as far as showing the relative merits of the older and the new methods, as is shown in the synopsis of 27 cases that I have appended to this paper. It will be seen that up to 1894, when I operated by a method that is at present classed with the incomplete operations, though it differed only from the present in the fact that I did not remove the pectoral muscles or attack the post-cervical region, I obtained 41% of recoveries that have stood the three-years' test and over. Since 1894 I have performed the Halsted or the Meyer operation exclusively, and have to deplore 61.7% of failures (deaths from metastases and recurrences,) and can only claim 38.3% recoveries, none of which has passed through the three-year limit. These results simply show the unreliability of small groups for general statistical deductions, and should in no serious manner affect our comparative estimate of the old and modern operations. I will not dwell now upon this phase of my experience, but simply call attention to the fact, clearly established in my mind, that, notwithstanding all the fallacies of statistics, the *collective* evidence gathered in the last five years shows that a marked increase of permanent recoveries has followed the more thorough operations of the present period.

In the face of all the facts that we have considered we are now ready to ask ourselves the following questions: What are the prospects of advancement that the future holds in store for the surgical treatment of cancer of the breast? Has the operative technic reached its maximum of perfection? Can we expect still better results from more extensive and aggressive operations, or must we now depend solely upon

earlier diagnosis, for early intervention and better opportunities to increase the effectiveness of present procedures? As far as I am concerned, and judging purely from my personal experience with Halsted's and Meyer's operations, I firmly believe that surgery has here nearly reached, if it has not already attained, its maximum expression of effectiveness, beyond which it is absolutely impossible to advance without great risk to life or with any further expectation of increasing the chances of permanent recovery. It is clearly fixed in my mind that all that surgery can do is to thoroughly eradicate the primary focus of infection in the breast, together with the most frequented extrathoracic routes of lymphatic contamination. Beyond this it is impossible to go further with any reasonable prospect of success unless it be in very exceptional and isolated cases. If such is the case, the success of surgery in coping with cancer of the breast must be estimated by the *future* statistics of the *present* operation. While we cannot consider the experience that has thus far accumulated as sufficient to afford an estimate for the best average results, enough evidence has been gathered to show that in the hands of the most experienced operators this *optimum* average will rarely exceed 50%. On this point I thoroughly concur with the opinion recently expressed by Bennett May :

"So far as is at present known our only hope of advancement lies in the direction of more thorough and more early operation. The limit of what is possible in the former direction will soon be reached, if it is not already reached. The result must carry conviction that we may hopefully anticipate a real cure in at least 30 or 40, or some would say, 50% of our cases. I would not like to place 30 as a rule, but it is with somewhat chastened hope that I look for anything beyond."

I would repeat that the real hope for improvement does not rest so much upon an extension of operative procedures and perfection in the technic, but in an

early recognition and earlier extirpation of the primary focus of invasion. The best results are bound to follow the practice of that operator who, being skilful and conscientious, is fortunate enough to deal with the most intelligent patients, who will seek his aid promptly and who will give him the opportunity to attack the disease in its earliest stages, before metastases have had time to develop. It is this factor of early diagnosis and early operation that accounts most satisfactorily for the different experiences of different operators, and by the same operator in different series of cases. This fact is strikingly illustrated by my own limited experience, as shown by the synopsis herewith appended.

Since 1894 I have operated upon a series of cases by the most radical and complete of present methods (Halsted's, Meyer's) and yet I have against my record 67.7% of failures, whereas in the preceding series of 10 cases, treated by less severe methods, I have had 40% of recoveries, with only 33% of total failures. While the bald statement of these figures might at first sight appear to detract from the merit of the more extensive operations, they do not diminish my appreciation of their superiority under similar conditions and circumstances. The reasons for the greater number of failures in my last series of cases is best accounted for by the nature of the cases themselves, and by the fact that with the greater confidence and experience acquired in my early operations I unwisely undertook to operate on advanced cases, which I probably would have refused to touch formerly. I have now performed the more radical operation, as formulated by Halsted and Meyer, often enough to convince me that in very advanced cases (*i. e.*, those in which the upper axillary, subscapular, and posterior cervical lymphatics are markedly involved), it offers no more prospect of cure or chance of escape from internal metastases and sec-

ondary recurrences in the neck than the older and less mutilating operations.

The new operation will unquestionably greatly diminish the probability of *local recurrence*, but the patients will die, as a rule, just as quickly from regional and internal metastases as if a superficial operation had been performed. For this reason I now generally prefer not to operate in cases in which, in addition to marked axillary involvement, there is distinct, palpable enlargement of the deeper supraclavicular lymphatic chains. Another class of cases that I consider hopeless are those in which the base of the mamma is involved and has become fixed to the chest-wall; the prospect is still worse if, in addition, the sternal quadrant has been originally involved. In addition to these purely topographic conditions, which have impressed me as being of particularly bad omen, there are certain well-known histogenetic peculiarities of the growth itself, the extent of the axillary involvement, such as total infiltration of the axillary fat, with subscapular prolongations involving the vessels and nerves, the existence of disseminated lenticular deposits in the skin of the paramammary region, enlargement of the sternum, revealing the medullary infection so much insisted upon by Herbert Snow; the evidence of visceral metastases—all conditions that are justly regarded by nearly all operators as positive contraindications to operation.

IV.

Now, a few words as to the operation itself. Notwithstanding the fact that my best results have been obtained with an operation that carried out the earlier teachings of Gross, Volkmann, and Banks, I have unhesitatingly adopted the principles of Halsted's operation since he described it in 1894, and thus far I have

seen no reason for returning to more primitive methods. By adopting Meyer's suggestion to detach the major pectoral from its humeral insertion in the start, I am satisfied that the operation is very much expedited, as the chief vascular supply of the field is thereby promptly controlled. The removal of both pectorals is a procedure that is surprisingly free from bad functional effects, for, apart from some stiffness and inability to raise the arm to the back of the head, the patients complain of comparatively little inconvenience. It certainly does not appear to add to the gravity of the operation. It does, on the other hand, greatly facilitate not only hemostasis, but also the prompt, complete, and safe exposure of the entire axilla, supraclavicular triangle, and subscapular space. It also permits the operator to remove *en bloc* the entire area of visible infection, from the axilla to the breast in a remarkably effective manner. I have given up trying to save any vessels or nerves in the axilla except the parent trunks and occasionally the long scapular and posterior thoracic. The axilla is thus cleared *in toto*, leaving the axillary plexus perfectly clean in the armpit. In clearing the supraclavicular fossa I have never found it necessary or justifiable to divide the clavicle. I have found the clearing of this space to be the most unsatisfactory part of the operation, because I always feel that the deep trapezial set of glands and the chains that accompany the subclavian vein are only partially touched. I have come to the conclusion that the thorough cleaning out of the space between the clavicle and the scapula and above it will do very well as a *prophylactic* procedure when the glands of this region are apparently normal; but when they are already *visibly* involved I feel confident that a zone of infection has spread beyond them, and that the key to the general lymphatic system has been hopelessly surrendered

to the enemy. In conclusion, I would state that whatever the fallacies that underlie the so-called radical operation for cancer of the breast, as a curative procedure, we are under lasting obligations to Dr. Halsted for the suggestion and brilliant demonstration of an operation that synthetizes in itself all the resources that modern surgery can bring to bear against this most formidable disease.

V.

SYNOPSIS OF 27 CASES OF MALIGNANT DISEASE OF THE BREAST OR ITS IMMEDIATE VICINITY, OPER- ATED ON FROM 1887-1898.

Twenty-six of these were in women, one in a man. Of the 26 women, 18 were multiparæ, 8 nulliparæ. The average age was 47 years. In 20 of the cases microscopic examination was made and revealed epithelial growths in 18, and sarcoma in 2. In the remainder the diagnosis was solely clinical, but the malignant character of the neoplasms was amply confirmed by the further course of the cases. All the patients made satisfactory and, the majority, excellent recoveries. There were no fatal cases from operative causes.

Of these 27 patients, 11 are living and well, though 1 has had three recurrences in three years and ten months; 1 is living but has now marked and inoperable recurrences and metastases, nearly four years after operation; 1 was well two years after the operation, but has not been heard from since; 2 have died from accidental causes not connected with the operation, and 12 from either local recurrence, metastases, or general dissemination.

Of the total of 27 patients 10 are living and well and *free* from recurrence (33.9 %). There have been 14 recurrences, of which 12 have proved fatal already (51+%).

The operations performed upon these 27 patients may be grouped as follows: 2 excisions of the breast, with simple exploratory incision into the axilla; 8

Gross " operations; 17 complete (Halsted) operations: Total 27 operations.

Summary of Results.—(A) So-called incomplete operations performed prior to November, 1894. Two patients were treated by simple excision of the breast, with exploratory incision into the axilla: 1 survived two years, but died finally from metastatic cancer of the uterus; 1 (a male) is still living, eight years after the operation, and is now free from local recurrence.

(B) Ten patients were treated by excision of the breast and extirpation of the axillary contents ("Gross" operation): 4 are living and have not had recurrence; 1, five years + three and one-half months after the operation; 1, four years + seven months after the operation; 1, three years + ten months after the operation; 1, three years + eight months after the operation. One is living three years and seven months after three operations for local recurrence, the last of which was performed two months ago. One is living, three years and two months after operation, but has inoperable recurrence in the neck and mediastinum. Three have died from local recurrence or metastasis. One was well two years after operation, which was performed ten years ago, but has not been heard from in the last six years.

Of a total of 10 cases treated by the Gross method, and if we include the 2 incomplete cases,—12 patients operated on prior to November, 1894,—5 have recovered completely without recurrence, fully beyond the three years' limit (or 41+%). If we include 1 patient who is now well, after three recurrences, the recoveries equal 60%. There has been recurrence in 3 cases (33+% of deaths) and 40% of recurrences. In one the result is unknown.

“COMPLETE” OPERATIONS SINCE NOVEMBER, 1894 (HALSTED'S ORIGINAL METHOD OR MODIFIED BY MEYER'S SUGGESTION).

Two patients died from causes not connected with the operation, viz.: One a month after a complete Halsted operation (March 20, 1895), from the effects of extensive burns; one from acute softening of the brain caused by embolism, two years and two months after a Meyer operation, performed February 16, 1895. Eight cases have terminated fatally from local recurrence, metastases, or general dissemination (63 + %.) The following is a synopsis of the cases:

CASE I.—A colored (mulatto) woman, aged 48 years, was operated in November, 1894. She had advanced acinous (scirrhus) carcinoma of the breast, with general involvement of the axillary glands. Complete extirpation was practised, including the pectoralis major, and minute dissection of the axilla and the supraclavicular space. Recurrence took place in the higher cervical glands, and lenticular nodules appeared in the neighborhood of the scar nine months after the operation.

CASE II.—A white religieuse, aged 50 years, presented advanced scirrhus of the breast, with marked axillary involvement. Halsted's operation was performed May, 1895. Recurrence took place in the axilla and the cervical glands. Death resulted from cervical diffusion and intrathoracic metastases thirteen months after the operation (recurrence was marked nine months after the operation).

CASE III.—An Israelite, aged 30 years, whose mother had died of primary mediastinal lympho-sarcoma, presented a rapidly growing adenosarcoma of the breast. A complete operation was performed, with the removal of both pectorals, February 23, 1895. Death took place twenty-three months after the operation, from metastasis in the liver, which grew to a prodigious size. There was no local recurrence.

CASE IV.—An Israelite, aged 34 years, presented a tumor that appeared during pregnancy, and attained enormous proportions during lactation in the one breast that was utilized to suckle her infant. As the other had suppurated from mastitis, a complete operation, with the removal of both pectorals, was performed, April 10, 1895. Metastases took place in the lower jaw (central myelogenous sarcoma), with rapid involvement of the submaxillary region, in nine months. Death occurred nine months after the operation from ligneous infiltration of the neck, asphyxia, and mediastinal growths, which proved to be sarcomata.

CASE V.—A white woman, aged 39 years, presented scirrhus of the breast and axilla. Halsted's operation was performed December 12, 1894. In ten months nodular deposits had formed in the cicatrix. Death took place twenty months afterward from general dissemination, especially in the prevertebral and lower carotid groups.

CASE VI.—A white woman, aged 63 years, presented scirrhus of the breast and axilla. A complete operation was performed, but deep mediastinal metastases had developed one year and ten months after the operation. Death occurred, with marked edema of the face and upper extremities, especially the right upper limb, and great dyspnea and cyanosis from laryngeal compression, two years and four months after the operation. There had been no local recurrence.

CASE VII.—A white woman, aged 54 years, who was very fat, presented a tubular carcinoma of the breast (clinically of encephaloid appearance) and axilla. Halsted's operation was performed November 25, 1895. Recurrence was noted January 1896. A secondary operation was performed, but death occurred March, 1897, from local axillary and general metastasis.

CASE VIII.—A white woman, aged 32 years, presented carcinoma of a probably supernumerary mammary gland near the axilla, with marked involvement of the axillary contents. Halsted's operation was performed January 3, 1896. A formidable and nearly fatal attack of erysipelas occurred during convalescence. Recurrence was noticed in the neck and lower angle of the cicatrix, far removed from the original seat of growth, in December, 1896, with rapid distribution and fusion of the metastases in the neck along the carotid tract, and death took place in great agony eighteen months after the operation.

SYNOPSIS OF FIVE CASES IN WHICH THE PATIENTS ARE LIVING WITHOUT RECURRENCE AFTER "COMPLETE" OPERATION.

CASE I.—A white woman, aged 48 years, presented an acinous (scirrhus) tumor of the breast, with axillary involvement. Halsted's operation was performed January 10, 1896, with an excellent functional result, the patient being well at present, without any sign of recurrence, two years and three months after the operation.

CASE II.—A white woman, aged 63 years, presented a scirrhus in the axillary quadrant, with involvement of the axilla; an operation was performed January 25, 1896. The patient is now well, without sign of recurrence, two years and three months after the operation.

CASE III.—An Israelite, aged 54 years, presented a scir-

rhous carcinoma in the upper half of the left breast; a complete operation was performed February, 1897. The patient is now well and free from recurrence—one year and two months after the operation.

CASE IV.—A white woman, aged 58 years, presented a rapidly growing carcinoma of the breast, with axillary involvement; a complete operation was performed March 4, 1898. Over one month has elapsed since the operation; and the wound is healing.

CASE V.—A colored woman, aged 34 years, presented a scirrhus of the breast, with axillary involvement. A complete operation was performed April 2, 1898. The wound is healing.

If we exclude the 2 cases in which death resulted from accidental causes, not connected with the operation, we have a total of 13 cases to be considered. Five of the patients are living and 8 are dead, *i. e.*, 38.3% recoveries (none beyond the three-years' limit), and 61.7% fatal cases. In 5 of the 8 fatal cases there was local recurrence alone or coincident with evidences of infection higher up in the neck or elsewhere—33.3% of local recurrences. In 3 death was caused by fatal metastases in the mediastinum, liver, or jaw (2 of these were sarcomas), without apparent local recurrences.